236 of the seat cushion **232**, and the rear-row actuator **122** are disposed adjacent a rear edge **237** of the seat cushion **232**.

[0170] As shown in FIGS. **22**A to **22**B and FIGS. **23**A to **23**C, the third tactile device (seat cushion tactile device) **231** is operationally connected to the second tactile device **201** composed of the pedal tactile device **202** and the floor tactile device **204** in a such manner while the vehicle is in the accelerating mode, the wave motion, which is transmitted to the driver's foot, further travels backward through the leg to the hip of the driver.

[0171] More specifically, as shown in FIG. **22**A, a wave motion produced by the pedal tactile device **202** on the skin layer **216** of the accelerator pedal **22** (FIG. **18**A) advances on and along the driver's foot bottom in the toe-to-heel direction, and in timed relation to the activation/deactivation of the actuators **122** of the floor tactile device **204**, the third tactile device (seat cushion tactile device) **231** operates to activate the front, central and rear rows of actuators **122** in sequence so that a wave motion traveling backward at the same frequency as the wave motion running through the foot bottom is produced on a front surface of the seat cushion **232**.

[0172] As shown in FIG. **23**A, in timed relation to the deactivation of the actuators **122** of the floor tactile device **204**, the front-row actuators **122** of the seat cushion tactile device **231** are activated to thereby produce a row of projections **241** on a surface layer **238** of the seat cushion **232**. The projections **241** thus produced can be perceived by the driver as a sensation of something tapping on the back of the thigh **233** subsequent to rubbing as done at the foot bottom. The wave motion can thus be transmitted from the heel to the thing **233** of the driver.

[0173] Immediately after formation of the projections **241**, the front-row actuators **122** of the seat cushion tactile device **231** are deactivated, and in synchronism with this deactivation, the central-row actuators **122** are activated to thereby form a row of projections **245** on the front layer **238** of the seat cushion **232**, as shown in FIG. **23**B. The projections **245** thus produced give rise to a sensation of the driver as being tapped by something at its hip **235**.

[0174] Immediately after formation of the projections **245**, the central-row actuators **122** are deactivated, and in synchronism with this deactivation, the rear-row actuators **122** are activated to thereby form a row of projections **247** on the front layer **238** of the seat cushion **232**, as shown in FIG. **23**C. The projections **247** thus produced can be perceived by the driver as a sensation of something tapping on the hip **235** at a portion offset backward from the portion tapped at the preceding cycle.

[0175] Immediately after formation of the projections **247**, the rear-row actuators **122** are deactivated and, at the same time, the front-row actuators **122** are activated to thereby produce a row of projections **241** on the surface layer **238** of the seat cushion **232**. The foregoing sequence of operations is repeated so that a wave motion traveling backward is produced on the surface layer **238** of the seat cushion **232**. The wave motion thus produced can be perceived by the driver as a sensation of something rubbing the back of the thigh **233** and the bottom of the hip **235** in sequence in a knee-to-hip direction. The wave motion has constant amplitude and a variable frequency, which varies in direct proportion to the vehicle speed. Since the wave motion on the seat cushion surface layer **238** occurs in synchronism with the wave motion transmitted from the second tactile device **201** to the driver's foot, the driver is allowed to feel the acceleration of the vehicle with at a lower body thereof. This will ensure clear and reliable transmission of vehicle state information to the driver. Additionally, since the wave motion has a vehicle speed dependent variable frequency, the driver is able to feel various speed-dependent vehicle behaviors with high fidelity.

[0176] In the illustrated embodiment shown in FIGS. **21** to **23**C, the seat cushion tactile device **231** is constructed to generate a wave motion traveling backward (in the knee-to-hip direction) as a information transmission medium. It is possible according to the invention to arrange the seat cushion tactile in such a manner as to generate a wave motion traveling forward (in the hip-to-knee direction). Furthermore, it is also possible according to the present invention to modify the seat cushion tactile device **231** in such a manner as to operate only when the vehicle **12** is traveling along a corner or a slip occurs between the vehicle wheels and the road surface.

[0177] FIGS. **24**A and **24**B show a tactile device **261** according to another embodiment of the present invention. The tactile device **261** differs from the tactile device **42** of the first embodiment shown in FIGS. **1** and **5** in that actuator rods **262** of linear reciprocating actuators project from an outer surface **263** (upper surface in the illustrated embodiment) of the steering wheel **31** by a distance H**1**, and a guard protrusion **263** is disposed on the grip portion of the steering wheel **31** so as to extend in a circumferential direction of the steering wheel **31** along an outer edge **264** of the tactile device **261**.

[0178] The guard protrusion **265** offers a particular advantageous effect, which will become apparent from the following description given below with reference to FIGS. **25**A and **25**B. For comparative purposes, FIG. **25**A dia-grammatically illustrates a steering wheel right grip portion incorporating therein a tactile device **272** of the structure identical to that of the tactile device **261**. However, the steering wheel **31** has no such protrusion as comparable to the guard protrusion **265** shown in FIGS. **24**A and **24**B. FIG. **25**B is a dia-grammatical view of the steering wheel right grip portion shown in FIG. **24**B.

[0179] In case of the tactile device **271** of the comparative example, due to the absence of a projection compatible to the guard protrusion **265**, tip end portions of the actuator rods **262** are likely to be pulled in a radial outward direction of the steering wheel, as indicated by the arrow b**2**, while the steering wheel is turned left or right. Thus, the tactile device **271** of the comparative example is therefore liable to be damaged at the actuator rods **262** and has a relatively short service like.

[0180] By contrast, in case of the tactile device **261** of the illustrated embodiment, the guard protrusion **265** is engageable with the driver's hand H (as indicated by the arrows b**3** shown in FIG. **25**B) to prevent the tactile device **261** from being subjected to undue force or stress tending to pull the actuator rods **262** in a radial outward direction during steering operation. The tactile device **261** is therefore durable and has a relatively long service lift.

[0181] FIG. **26** diagrammatically shows a tactile device **261**B according to a modification of the present invention. The modified tactile device **261**B differs from the tactile device **261** shown in FIGS. **24**A and **24**B in that tip ends of the respective actuator rods **262** lie in a lower level than an upper surface **263** of the steering wheel **31** by a distance H**2**. The steering wheel **31** has a guard protrusion **265** corresponding in construction and function to the guard protrusion **265** discussed above with reference to FIG. **25**B. With this arrangement, the guard protrusion **265** engages the driver's hand during steering operation and protects the actuator rods **262**